

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 18 JAN 2006

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| Applicant's or agent's file reference TIMK 8805WO | FOR FURTHER ACTION | | See Form PCT/PEA/416 |
| International application No. PCT/US2004/038250 | International filing date (day/month/year) 10.11.2004 | Priority date (day/month/year) 10.11.2003 | |
| International Patent Classification (IPC) or national classification and IPC F16C33/78, F16J15/34 | | | |
| Applicant THE TIMKEN COMPANY et al. | | | |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> | | | |
| <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p> | | | |
| Date of submission of the demand 03.06.2005 | | Date of completion of this report 16.01.2006 | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840 | | Authorized Officer Axelsson, T Telephone No. +49 30 25901- | |



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/038250

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-17 as originally filed

Claims, Numbers

1-29 as originally filed

Drawings, Sheets

1/6-6/6 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/038250

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------------------------------|
| Novelty (N) | Yes: Claims | 4,9,12-16,22,23,25 |
| | No: Claims | 1-3,5-8,10,11,17-21,24,26-29 |
| Inventive step (IS) | Yes: Claims | 12-15,22,23 |
| | No: Claims | 1-11,16-21,24-29 |
| Industrial applicability (IA) | Yes: Claims | 1-29 |
| | No: Claims | |

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V.

1 Reference is made to the following documents:

D1 : US 4 167 297 A (CHEESMAN ET AL) 11 September 1979 (1979-09-11)
D2 : EP 0 677 673 A (SNR ROULEMENTS) 18 October 1995 (1995-10-18)
D3 : US 2 647 025 A (DEFFENBAUGH JOHN L) 28 July 1953 (1953-07-28)
D4 : US 3 201 134 A (HAYATIAN ALLAN A) 17 August 1965 (1965-08-17)

2 INDEPENDENT CLAIM 1

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document):

an assembly for accommodating rotation about an axis (see fig.1), said assembly comprising: a first member (10); a second member (F); a bearing located between the first and second members (10,F) and having an inner race (12) fitted to the first member (10) and provided with a raceway (12b) that is presented away from the axis, an outer race (22) that is fitted to the second member (F) and is provided with a raceway (22b) that is presented toward the axis and the raceway (12b) of the inner race (12), and rolling elements (24) located between and contacting the raceways (12b,22b) of the inner and outer races (12,22); a seal (S) for isolating the interior of the bearing from external contaminants and including a first wear ring (30d), a second wear ring (30c), a backing element (30b,30a) urging one of the wear rings (30d,30c) toward the other wear ring (30d,30c), at least one of the wear rings (30d) being carried by one of the races (22,26).

The subject-matter of claim 1 is therefore not new.

2.2 Also documents D2 and D3 disclose the subject-matter of claim 1.

3 INDEPENDENT CLAIM 18

- 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 18 is not new in the sense of Article 33(2) PCT.
Document D1 discloses (the references in parentheses applying to this document):

a bearing assembly for facilitating rotation about an axis (see fig.1), said bearing assembly comprising: an inner race (12) having a raceway (12b) that is presented outwardly away from the axis; an outer race (22) having a raceway (22b) that is presented inwardly toward the axis and toward the raceway (12b) on the inner race (12), rolling elements (24) located between and contacting inner and outer raceways (12b,22b); an extension (26) joined (column 5, lines 22-25) to the outer race (22) and projecting axially beyond the raceway (22b) of the outer race (22), a first wear ring (30d) having a wear surface located at an angle with respect to the axis; a first backing element (30b) supporting the first wear ring (30d) on the extension (26) and urging the first wear ring (30d) away from the extension (26); a second wear ring (30c) having a wear surface located at a steep angle with respect to the axis and contacting the wear surface of the first wear ring (30d); a second backing element (30a) supporting the second wear ring (30c); the two wear rings (30d,30c) being biased toward each other.

The subject-matter of claim 18 is therefore not new.

- 3.2 Also documents D2 and D3 disclose the subject-matter of claim 18.

4 INDEPENDENT CLAIM 26

- 4.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 26 is not new in the sense of Article 33(2) PCT.
Document D4 discloses (the references in parentheses applying to this document):

a seal (see fig. 2-4) for establishing a fluid barrier around an axis of rotation, said seal comprising: a first wear ring (61) having a wear surface (69) that lies at

an angle with respect to the axis; a second wear (61a) ring located adjacent to the first wear ring (61) and having a wear surface (69) that is against the wear surface (69) of the first wear ring (61); a first backing element (62) for urging the first wear ring (61) toward the second wear ring (61a), the first backing element (62) being formed from a polymer (column 4, line 38: "rubber") and including, a base (73) located remote from the first wear ring (61), a floating segment (74) attached to the first wear ring (61), and a resilient connecting segment (71) extending between and attached to the base (73) and floating segments (74); a second backing element (62a) for urging the second wear ring (61a) toward the first wear ring (61), the second backing element (62a) being formed from a polymer and including a base located remote from the second wear ring, a floating segment attached to the second wear ring, and a resilient connecting segment extending between and attached to the base and floating element.

The subject-matter of claim 26 is therefore not new.

5 DEPENDENT CLAIMS 2-11, 16, 17, 19-21, 24, 25, 27-29

Dependent claims 2-11, 16, 17, 19-21, 24, 25, 27-29 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT) for the following reasons:

- 5.1 Document D1 further discloses the subject-matter of claims 2, 6-8, 10, 17, 19-21, 24.
- 5.2 Document D2 further discloses the subject-matter of claims 2, 3, 8, 11, 19, 20.
- 5.3 Document D3 further discloses the subject-matter of claims 2,5,19.
- 5.4 Document D4 further discloses the subject-matter of claims 27-29.
- 5.5 In claims 4, 9, 16 and 25 slight constructional changes in the bearing assemblies of D1-D3 are defined which comes within the scope of the customary practice followed by persons skilled in the art. Consequently, the subject-matter of claims 4,9, 16 and

25 appears to lack an inventive step.

6 DEPENDENT CLAIMS 12-15, 22,23

The subject-matter of dependent claims 12-15, 22 and 23 defines novel combinations of subject-matter, each part however being separately known by different prior art disclosures (document D1+D4 or D3+D4). Although these combinations are novel with respect to the available prior art, it is not apparent to the skilled person what inventive technical effects the specific combinations of subject-matter produces. Should the applicant regard this subject-matter as involving an inventive step, a new independent claim should be drafted to include these features, bearing in mind that the features known from document D1 should be placed in the preamble of such a claim in accordance with Rule 6.3(b) PCT. The applicant should also indicate in the letter of reply the difference, in terms of technical features, between the subject-matter of the new claim vis-à-vis the state of the art, the technical effect caused by this difference and the technical problem solved by this effect. The applicant is emphasized to draft new claims having unity of invention (Rule 13 PCT) in mind, i.e. draft claims such that the novel features of each independent claim are so linked as to form a single general inventive concept.